# A New Genus of Bees in the Family Colletidae

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(Plate xxxviii)

In May, 1946, Norman W. Rodd visited a typical sandstone gully a few miles from Sydney and collected a few wild-bees, chiefly in the genus *Exoneura.* Among them was a small but remarkably slender black male, which was put aside for the time being with the hope that further material might come to hand, including the female.

Several years passed, but the fates were not propitiou, and it has become advisable to describe the insect. At first glance the bee might be mistaken for a small species of *Euryglossa,* but critical examination reveals several surprising characters.

The general facies is not extraordinary, but the morphological details certainly are. The head is small, and the mouth-parts are quite unlike those of any other Australian bee, for they are excessively long for so small an insect, and under a hand-lens appear to consist of 14 long fine amber threads, among which it is impossible to identify the glossa.

However, when the exceedingly tenuous mouth-parts are dissected out and mounted in "Euparel," the actual glossa can then be identified as a very short, obscure organ at the extreme base of the bundle of "threads." The threads themselves are seen to be 12 exceedingly long filaments springing from the apices of the galeae of the short maxillae, and the two exceedingly long labial palpi. Although the labial palpi are so spectacular, the apices of both have been broken off, and it is, therefore, impossible to determine how many segments were in the complete palpus.

The maxillary palpi, each of six segments, are equally tenuous, the fourth segment being very long and the sixth very small. The measurements in microns, together with the diagrams, will enable the student to appreciate better the remarkable character of the mouth-parts.

The sculpture of the dorsum of the epinotum has an area similar to that of many Halicti, for there is a dome-shaped line enclosing a number of fine rugae. Beyond the area the declivity is steep, and the sculpture a kind of coarse, scale-like tessellation. The abdomen has the same peculiar "net-work" sculpture that is found on certain species of *Euryglossa,* but the apical segment is acute. The neuration of the wings resembles that of certain *Megachile,* for there are only two large cubital cells, the second being almost as long as the first; the radial cell is pointed on the costa; the pterostigma long and conspicuous.

A study of the genitalia demonstrates that this bee, notwithstanding its unique mouth-parts, undoubtedly has affinities with *Lysicolletes,* which has only short primitive mouth-parts. The author believes that the distinctive morphological characters amply justify him in proposing a new genus, *Filiglossa,* in the Family Colletidae, and appends this specific description of the new species. *F. filamentosa* is the type-species.

## FILIGLOSSA FILAMENTOSA, gen. et. sp. nov.

Genotype, Male—Length 5.4 mm. approx. Black and very slender.

Head transverse, and shining; face with long plumose white hair not dense; frons coarsely punctured in a fan-like pattern; clypeus with a semicircular flat area, polished, with a very few rather large shallow punctures; it is nevertheless generally convex; supraclypeal area polished, rising to a fine carina that reaches the median ocellus; vertex short, punctures closer and even in size; compound eyes large, converging a trifle below; facial foveae are deeply incised, but very short, curving inwards on the vertex to surround the lateral ocelli with a highly-polished area; genae somewhat lineate, with long plumose hair; labrum black, it appears to be a long oval, but cannot be critically examined; mandibulae narrow,

bidentate, amber, black on basal fifth, reddish apically; antennae long, submoniliform, segments longer than wide, apical one obliquely truncated to a point; scapes of medium length but slender.

Prothorax long, but far below the mesothoracic disc, polished; tubercles black; mesothorax may be described as polished, although there is a trace of a lineate sculpture, scattered large shallow punctures, a very few long white plumose hairs; scutellum convex, with closer punctures, the delicate sculpture more evident; postscutellum rougher, otherwise similar to scutellum; metathorax shining, with a well-marked sculpture between rugosity and tessellation, with a dome-shaped enclosed area, like that of *Halictus,* containing a few short longitudinal rugae, the rim of the enclosure bears a number of microscopic cross-bars; there is some long loose white hair around the metathorax; abdominal dorsal segments black, bright, a delicate striation with punctures forming a net-like sculpture; ventral segments with amber margins, fringed with white hair.

Legs black, knees and median and anterior tibiae amber; sparse long white hair; tarsi amber, slender; claws short, stout, bifid, amber-red; hind calcar finely serrated; tegulae amber, suffused with black; wings hyaline, iridescent; nervures blackish, basal slightly curved, falling just shore of nervulus; recurrents received just inside the intercubiti; two cubital cells, the second more than half as long as the first; radial pointed on the costa; pterostigma conspicuous, blackish; hamuli six, weakly developed.

The new genus stands next to *Lysicolletes* Raym. which was published as a subgenus of *Paracolletes,* but the present study has shown the advisability of raising it to full rank.

The malus of the strigilis of the female *Lysicolletes* is simple, like that of *Megachile;* in *Filiglossa* it has several spines, the velum is wide and convex in the first, but narrow and straight in the second.

The area of the dorsum of the epinotum has no rugae or striae in *Lysicolletes,* but in *Filiglossa* the margin of the area is sharply defined, and there are numerous rugal or striae.

The abdomen is ovate in *Lysicolletes* but clavate in *Filiglossa,* and the sculpturing of the first is duller, owing to the excessively close puncturing, in *Lysicolletes* the terga are smooth with a microscopic lineation. In all the specimens examined, the second cubital is narrower in *Lysicolletes,* and more contracted at the top.

The legs are stouter and the tarsi shorter in *Lysicolletes,* and the hind calcar of the female bears a number of rounded, almost nodular teeth; it is finely pectinate in *Filiglossa,* and the legs are very slender indeed, with longer tarsi; the comb opposing the strigilis on the anterior legs is very long indeed in *Lysicolletes.*

Antenna—Scape: 350; flagellum 1,650; total length 2,000.

Glossa—145; mentum 600; total length 745.

Labial palpus—broken off at 1,445; total length unknown.

Maxillary palpus { 1 seg. 120; 2 seg. 160; 3 seg. 130; 4 seg. 220; 5 seg. 100; 6 seg. 70. } total 800.

Filaments of Max.—1,625. Maxilla + galea—540. } total length 2,165.

Mandible—590; 110 at narrowest part.

Genitalia—450 long and 275 wide.

The filaments, and also the labial palpi, are true tubes, being hollow throughout their entire length. The filamentaceous maxillae are probably the most remarkable in the Apoidea, and the author suggests that the bees are associated with an equally remarkable flower.

Locality: Lane Cove, New South Wales, May, 1947, leg. Norman Rodd.

Genotype in the collection of the author.

Allies: Not near to any other species, and persistent collecting in the area should bring in the female.

No female from the Lane Cove locality agrees with the remarkable male, but two females taken at Patonga, some 45 miles north of Sydney, conform with the generic diagnosis of *Filiglossa* with the exception of the mouth-parts. However, the long filaments of the male may be a sexual character, but the short broad glossa of the females is heavily fringed on its anterior margin. They are undoubtedly colletids, with two large cubital cells in the wings, and a strongly arched basal nervure. The pterostigma is large and conspicuous, and there is considerable loose plumose hair. The genotype has the titillatum of *Paracolletes,* which has three cubital cells.

The abdomen is smooth, with a similar microscopic cancellate sculpture, and the tiny apical plate is masked by the caudal tuft; the dorsum of the metathorax has an enclosed area, with numerous striae. The legs are slender, but the basitarsus is broad; the hind calcar finely pectinate.

From the sculpture of the dorsum (See Nos. 2 and 23 in Pl. xxxvii) it does not seem that either of these females could be the other sex of *F. filamentosa,* but they are undoubtedly closely allied. The specific descriptions are appended.

FILIGLOSSA STRIATULA, sp. nov.

Type, Female—Length 5 mm. approx. Black, red tarsi.

Head wide for so small a bee; rather dull; below the antennae shining; face with considerable long, loose white plumose hair; frons wrinkled, microscopically longitudinally striate; clypeus convex, polished, a few large punctures, long, loose white hair; supraclypeal area polished, with a fine carina that reaches the median ocellus; vertex with the striae converging on the ocelli, somewhat radially; compound eyes with anterior margins parallel; genae shining, with piliferous punctures and a beard of long white hair; labrum a small oval, black; mandibulae black, narrowly bidentate, a reddish mark in middle; antennae with curved scapes, black.

Prothorax black, tessellate; tubercles black, with a fringe of white hair; mesothorax polished, a few large shallow piliferous punctures, and a few white hairs; parapsidal and medium furrows conspicuous; scutellum similar, highly polished, a median sulcus; postscutellum rougher; metathorax with an enclosed area finely longitudinally striate (See No. 23 in Plate xxxviii); the rim rather sharp; abdominal dorsal segments clavate, black, posterior margins narrowly amber, a microscopic lineation more or less transverse, impunctate, a few smoky hairs apically; ventral segments reddish, with much long white plumose hair.

Legs black, with considerable long white forked hair, a small ctenidium apically on tibiae; tarsi red; basitarsus rather wide; claws red, bidentate; hind calcar white, finely pectinate tegulae pale-amber; wings subhyaline; the large radial cell rounded on the costa; nervures brown, the two recurrents received by the long second cubital cell; the first at the first quarter; basal arched; cells: the two discoidals are very large; pterostigma very large, brownish, hamuli seven, weak.

Locality: Patonga, New South Wales, 14th Oct., 1947, leg. Norman W. Rodd.

Type in the collection of the author.

Allies: This can hardly be the female of *F. filamentosa,* sp. nov., but it approaches rather closely a larger female, *F. proxima,* sp. nov., which has transverse striae in the enclosed area of the dorsum of the epinotum. Both females were taken at the same time and place.

FILIGLOSSA PROXIMA, sp. nov.

Type, Female—Length 7 mm. approx. Black, red tarsi.

Head shining, considerable long white loose plumose hair, almost circular from the front; facial foveae, at a certain angle, appear to be large smooth cunieform marks; frons bright, microscopically lineato punctate; clypeus highly polished, convex, scattered large piliferous punctures, a few white hairs;

supraclypeal area elevated, polished, impunctate, a fine carina reaches the median ocellus; vertex with the striae converging on the ocelli, a few smoky hairs; compound eyes with anterior margins parallel; genae rugosopunctate, with a beard of long white hair; labrum a narrow oval, black; mandibulae narrow, black, bidentate; antennae with curved scapes, blackish above, obscurely brown beneath, submoniliform.

Prothorax inconspicuous, black; tubercles black, with a fringe of long white hair; mesothorax polished, a few large piliferous punctures, and some long smoky hair, parapsidal furrows conspicuous; scutellum polished, disc impunctate, a few smoky hairs; postscutellum rougher, with large punctures; metathorax with many fine transverse striae in an enclosed area, laterally there is much long white hair; abdominal dorsal segments clavate, smooth, impunctate, a delicate cancellate sculpture, a few dark hairs apically with a dark caudal tuft; ventral segments with fringe of long white plumose hair.

Legs black, slender, knees red, considerable long white plumose hair; tarsi red, hair somewhat golden; claws bidentate, reddish; hind calcar buried in a mass of golden pollen-grains (myrtaceous); tegulae testaceous; wings slightly milky, iridescent; nervures brown, the first recurrent received farther in; cells: as in *F. striatula;* pterostigma large, amber-brown; hamuli seven.

Locality: Patonga, New South Wales, 14th Oct., 1947, leg. Norman W. Rodd.

Type in the collection of the author.

Allies: Close to *F. striatula,* which has longitudinal stripe in the enclosed area of the dorsum.

## LYSICOLLETES IMITATOR, sp. nov.

Type, Male—Length, 6 mm. approx. Black, some reddish colour on legs.

Head transverse, bright; face with considerable long white plumose hair; frons minutely wrinkled; clypeus more shining, convex, a few small punctures, the delicate tessellation almost obsolete; supraclypeal area convex, impunctate, with the tessellation more evident, and rising to a fine carina that reaches the median ocellus; vertex finely rugose, a few smoky hairs; compound eyes with anterior margins practically parallel; genae tessellate, a few white hairs; labrum a narrow oval, black; mandibulae black, narrow, finely bidentate; antennae submoniliform, black above, coffee-brown below.

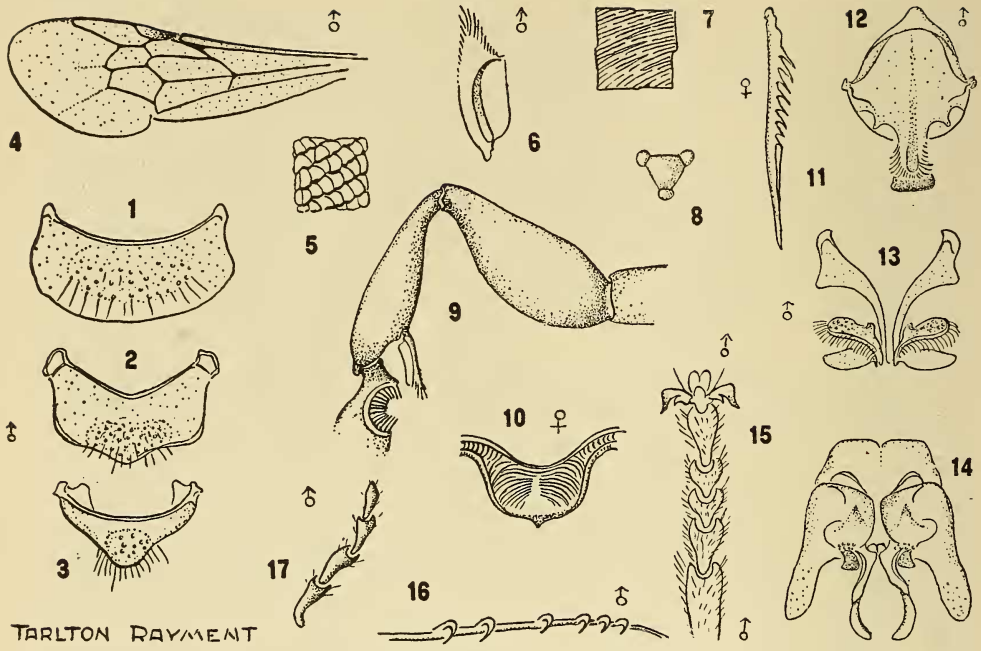
Prothorax long, black, tessellate; tubercles black, with a fringe of white hair; mesothorax shining, a delicate cancellate lineation, and scattered piliferous punctures, and a few dark hairs almost black; scutellum and postscutellum of similar sculpture; metathorax with the tessellate area barely defined, almost nude; abdominal dorsal segments clavate, brown deeply suffused with blackish, the margins somewhat luteous, a delicate transverse lineation, practically nude, a rare white hair; ventral segments reddish-amber, a few long white hairs.

Legs blackish, anterior tibiae red, others brownish, white hair; tarsi reddish-brown, quite stout, a few white hairs; claws bidentate, reddish-amber; hind calcar pallid; tegulae polished, black; wings subhyaline nervures brown, the two recurrents received at equal distances by the second cubital cell; which is large, but not so long as in *Filiglossa,* and is contracted at top, basal nervure not so strongly arched; pterostigma large, brownish; hamuli six, weak.

Locality: Engadine, New South Wales, 13th July, 1947, leg. Norman W. Rodd.

Type in the collection of the author.

Allies: The male has a close superficial likeness to *Filiglossa filamentosa* Raym., but the mouth-parts are similar to those of *Lysicolletes,* and the velum of the strigilis is strongly convex; apical segment of flagellum conical, not obliquely truncate as in *Filiglossa.*




EXPLANATION OF TEXT-FIGURE.

1, 2, 3. Apical plates of the male abdomen, *Lysicolletes imitator*, sp. nov.

4. Anterior wing; note the two cubital cells and large pterostigma.

5. Scale-like sculpture of the metathorax.

6. Strigilis of the anterior leg.

7. Lineate sculpture of the abdomen.

8. The female of *Filiglossa proxima*, sp. nov., carried large loads of pollen, probably from *Leptospermum* sp.

9. Portion of front leg of *Lysicolletes imitator*.

10. Lineate sculpture of metathorax of female *Filiglossa proxima*.

11. The hind calcar of *F. proxima* is long and slender, and finely pectinate in the middle only.

12. Ninth sternum of male *Lysicolletes imitator*.

13. Eighth sternum.

14. Genitalia of *L. imitator*.

15. Anterior tarsus of male.

16. Hamuli of male.

17. The labial palpus is short and stout in *Lysicolletes* (very different from that of *Filiglossa*).

## EXPLANATION OF PLATE

1. Adult male bee, *Filiglossa filamentosa,* sp. nov.
2. The dorsum of the epinotum has an enclosed area with a few longitudinal fine rugae.
3. The mandible of the male is narrow, but finely bidentate.
4. Antenna has 13 segments; the apical one is obliquely truncate.
5. The glossa is minute, but the labial palpi are excessively long, although the apices of the tenuous second segments were broken off.
6. Cross-section of the second segment of the labial palpus, showing the tube.
7. Each maxilla bears a minute lacinia, and a tuft of six very remarkable filaments of extreme length and tenuity.
8. Appearance of the base of one of the filaments.
9. View of the interior of the base; the filaments are hollow like the palpus.
10. Genitalia of the male; the gonostyli are nude, but in *Paracolletes* they bear a heavy vestiture of plumose hair.
11. Sculpture of the mesothoracic disc; the punctures are widely separated.
12. Sculpture of the abdominal segments.
13. Strigilis of the anterior leg.
14. The claws of the fifth tarsus are bifid; the pulvillus small.
15, 16, 17, 18, 19. Apical sterna of the male abdomen. The actual structure of the last plate cannot be accurately determined from the mounted preparation. The missing portion is probably attached to the ninth sternum.
20. Apical tergum of the male.
21. The fourth segment of the slender maxillary palpus is the longest.
22. Black plumose hair on caudal segments of abdomen.
23. Knee-plate or patella of the posterior leg.
24. Striate area of metathorax of female *F. striatula,* sp. nov.
25. Facial fovea reaches the lateral ocelli.
26. One of the pollen-grains from female *F. striatula,* sp. nov.
27. Sculpture on one of the corners of the pollen-grain.
28. The hind calcar of the female is finely pectinate.
29. Ctenidium at base of basitarsus of female.